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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/667,487

09/23/2003

Noboru Yamanaka

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09/30/2005

OLIFF & BERRIDGE, PLC

P.O. BOX 19928

ALEXANDRIA, VA 22320

EXAMINER

CAO, ALLEN T

ART UNIT

PAPER NUMBER

2652

DATE MAILED: 09/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/667,487

Applicant(s)

YAMANAKA, NOBORU

Examiner

Allen T. Cao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-9,12,13 and 16-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-9,12,13 and 16-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

By

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 5-9, 12-13 and 16-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shukh et al (US. 2002/0176214 A1) in view of Sasaki (US. 6,452,743 B1).

Shukh et al discloses a thin film magnetic head having at least one writing element [0029], the writing element including a first magnetic film (main pole 11 including main pole extension 15; notes that poles of the magnetic head are made by magnetic material), a second magnetic film 12, a gap film 13, a coil film 14 and third magnetic films (19, 19); the first magnetic film including a first pole piece/tip (the end of the pole layer facing to the air bearing surface); the second magnetic film including a second pole piece/tip; the gap film 13 being located between the first pole piece and the second pole piece; the first magnetic film and the second magnetic film being magnetically combined at a joint 41 as viewed backward from the first pole piece and the second pole piece ([0029], lines 9-12); the coil film winding vertically around the joint 41 ([0029], lines 12-13); the third magnetic films (19, 19) being disposed at both sides of the first pole piece by a given distance, all as set forth in claims 1 and 18.

Shukh et al does not disclose that the third magnetic films are disposed between a medium opposing surface of the thin film magnetic head and the outermost coil turn of

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the coil film (claim 1) or that the third magnetic films are so disposed as to cover the coil film (claim 18).

Sasaki discloses a thin film magnetic head having a coil film 111 and the photoresist layers 112 that are disposed between a medium opposing surface of the thin film magnetic head and the outermost coil turn of the coil film (claim 1) or that the third magnetic films are so disposed as to cover the coil film (claim 18).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify to rearrange the third magnetic films of Shukh et al such that the third magnetic films are disposed between a medium opposing surface of the thin film magnetic head and the outermost coil turn of the coil film (claim 1) or that the third magnetic films are so disposed as to cover the coil film (claim 18), as taught by the photoresist layers of Sasaki.

The rationale is as follows: One of ordinary skill in the art would have been motivated to modify to rearrange the third magnetic films of Shukh et al such that the third magnetic films are disposed between a medium opposing surface of the thin film magnetic head and the outermost coil turn of the coil film (claim 1) or that the third magnetic films are so disposed as to cover the coil film (claim 18), as taught by the photoresist layers of Sasaki to provide the throat height is controlled with more accuracy, thus improve read/write characteristics of the head.

Regarding claims 5 and 20, Shukh et al discloses that the third magnetic films are divided.

Regarding claim 6, 12, 21 and 25, Shukh et al discloses that the magnetic head includes a reading element comprised of a giant magnetoresistive effective film (see [0028]).

Regarding claims 7, 16-17, 22 and 26-28, Shukh et al discloses a head supporting device to support the thin film magnetic head (figure 1).

Regarding claims 8 and 23, Shukh et al discloses a magnetic recording medium to be magnetically written and read with cooperated with the magnetic head device (Figures 8-11 and see also [0028] and [0029]).

Regarding claim 29, Shukh et al discloses that the first pole piece, the second pole piece and the gap films are located on a same plane level; and forefronts of the first pole piece, the second pole piece and the gap film constitute the medium opposing surface.

Regarding claims 2 and 19, Shukh et al discloses that the given distance is from 20nm to 60nm (equal to 0.02 μm to 0.06 μm ; see [0029], lines 23-25 and [0030], lines 8-9).

Shukh et al as modified by Sasaki does not disclose that the given distance is in the range of 1.5 μm to 6 μm .

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the given distance of Shukh et al as modified by Sasaki as set forth from the range of 0.02 μm - 0.06 μm to the range of 1.5 μm - 2 μm .

The rationale is as follows: One of ordinary skill in the art would have been motivated to modify the given distance of Shukh et al as modified by Sasaki as set forth

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from the range of 0.02 μm - 0.06 μm to the range of 1.5 μm - 2 μm through an obvious engineering routine lab experimentation for picking a specifically ranges in order to receive more fringing flux generated by the pole and prevent erasing or weakening of previously recorded information on adjacent tracks.

Regarding claims 9 and 24, Shukh et al discloses that the magnetic head includes a reading element comprised of a giant magnetoresistive effective film (see [0028]).

Regarding claim 13, Shukh et al discloses a head supporting device to support the thin film magnetic head (figure 1).

Response to Arguments

3. Applicant's arguments with respect to claims 1-2, 5-9, 12-13 and 16-29 have been considered but are moot in view of the new ground(s) of rejection.

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Applicant's amendment (the phrase "said third magnetic films are disposed between a medium opposing surface of the thin film magnetic head and an outermost coil turn of said coil film" in claim 1 and newly added claim 18 necessitated the new ground(s) of rejection presented in this Office action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen T Cao whose telephone number is (571) 272-7569. The examiner can normally be reached on Mon - Thurs (7:30 - 6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allen Cao
Primary Examiner

AC
April 17, 2005